



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,072	02/11/2004	Magnus Fagrell	6796-000010/US/DVB	3314
30593 7590 11/16/2007 HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195			EXAMINER WONG, EDNA	
			ART UNIT	PAPER NUMBER
			1795	
			MAIL DATE	DELIVERY MODE
			11/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/775,072

Applicant(s)

FAGRELL, MAGNUS

Examiner

Edna Wong

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 1-3 and 10-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/857,455.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :February 11, 2004 and February 13, 2007.

Election/Restrictions

Applicant's election with traverse of Group II, claims **4-9**, in the reply filed on October 18, 2007 is acknowledged. The traversal is on the ground(s) that in the present case, and as indicated in the restriction requirement, the Examiner would have to search only subclass 157.15 within class 204 in order to search and examine original claims 1-15, 17, 18, 21, 22, 25, 26, 30 and 31; and searching only one subclass within one class would not present a serious burden on the Examiner. This is not found persuasive because the class 204 and subclass 157.15 listed in the Examiner's restriction requirement is not the search for the claims but the original classification of the claims.

The requirement is still deemed proper and is therefore made FINAL.

Accordingly, claims **1-3 and 10-43** are withdrawn from consideration as being directed to a non-elected invention.

Specification

The disclosure is objected to because of the following informalities:

pages 1-28, a -- Brief Description of the Drawings -- is missing.

page 3, line 3, the word "ofTWT's" should be amended to the words -- of TWT's --.

page 4, line 13, a -- . -- (period) should be inserted after the word

Art Unit: 1795

"sample".

page 7, line 7, the word "at" (second occurrence) should be deleted.

page 12, line 20, the word "andamplifiers" should be amended to the words -- and amplifiers --.

page 12, line 25, the word "theamplitude" should be amended to the words -- the amplitude --.

page 13, line 2, the word "gain.The" should be amended to the words -- gain. The --.

page 13, line 6, the word "Typicalranges" should be amended to the words -- Typical ranges --.

page 13, line 35, "34.Some" should be amended to -- 34. Some --.

page 14, line 34, the word "usewave-guides" should be amended to the words -- use wave-guides --.

page 16, line 17, the word "applicatorcan" should be amended to the

Art Unit: 1795

words -- applicator can --.

page 18, line 23, the word "triangularwave" should be amended to the words -- triangular wave --.

page 19, line 27, a -- . -- (period) should be inserted after the word "frequency".

page 20, line 37, the word "samplespermittivity" should be amended to the words -- samples permittivity --.

page 21, line 5, the word "thepolymerase" should be amended to the words -- the polymerase --.

page 21, line 28, the word "athermostable" should be amended to the words -- a thermostable --.

page 26, line 31, the word "abiomolecule" should be amended to the words -- a biomolecule --.

Appropriate correction is required.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

Claim 9 is objected to because of the following informalities:

Claim 9

line 4, the word "at" (second occurrence) should be deleted.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9

line 1, "the reaction" lacks antecedent basis.

line 2, it appears that the "at least one generator" is the same as the first generator or the second generator. However, it is unclear if it is. If it is not, then what is the difference/ relationship between the first generator, the second

generator and the least one generator?

lines 2-3, it appears that the "electromagnetic radiation" is the same as the electromagnetic radiation recited in claim 4, line 7; or the electromagnetic radiation recited in claim 4, line 10. However, it is unclear if it is. If it is not, then what is the difference/ relationship between the electromagnetic radiations?

line 4, it appears that the "electromagnetic radiation" is the same as the electromagnetic radiation recited in claim 9, lines 2-3; the electromagnetic radiation recited in claim 4, line 7; or the electromagnetic radiation recited in claim 4, line 10. However, it is unclear if it is. If it is not, then what is the difference/ relationship between the electromagnetic radiations?

line 5, it appears that the "electromagnetic radiation" is the same as the electromagnetic radiation recited in claim 9, lines 2-3. However, it is unclear if it is. If it is not, then what is the difference/ relationship between the electromagnetic radiations?

line 5, it appears that the "at least one applicator" is the same as the first applicator recited in claim 4, line 3; or the second applicator recited claim 4, line 4. However, it is unclear if it is. If it is not, then what is the difference/ relationship between the first applicator, the second applicator and the at least

Art Unit: 1795

one applicator? See also claim 9, lines 7-8.

line 6, "said at least one generators" (plural) lack antecedent basis.

line 7, it appears that "a sample" is the same as the first sample recited in claim 4, line 3; or the second sample recited in claim 4, line 4. However, it is unclear if it is. If it is not, then what is the difference/ relationship between the samples?

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims **4-8** are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims **14-18** of prior U.S. Patent No. **6,403,939 B1**. This is a double patenting rejection.

Present Claim 4 recites:

A method of performing a plurality of chemical reactions simultaneously, said method comprising:

Art Unit: 1795

- a) providing a first sample into a first applicator,
- b) providing a second sample into a second applicator,
- c) applying electromagnetic radiation to the first sample in the first applicator from **a first generator**, the first generator being capable of generating electromagnetic radiation at a plurality of frequencies,
- d) applying electromagnetic radiation to the second sample in the second applicator from **a second generator**, the second generator being capable of generating electromagnetic radiation at a plurality of frequencies, and
- e) individually controlling the electromagnetic radiation applied to the first and second applicator by individually and independently controlling the first and second generator in response to control signals from the first and second applicators.

Patented Claim 14 recites:

A method of performing a plurality of chemical reactions simultaneously, said method comprising the steps of:

- a) providing a first sample into a first applicator,
- b) providing a second sample into a second applicator,
- c) applying electromagnetic radiation to the first sample in the first applicator from **a first generating means**, said first generating means being capable of generating electromagnetic radiation at a plurality of frequencies,
- d) applying electromagnetic radiation to the second sample in the second applicator from **a second generating means**, said second generating means being capable of generating electromagnetic radiation at a plurality of frequencies, and
- e) individually controlling the electromagnetic radiation applied to the first and second applicator by individually and independently controlling the first and second generating means in response to control signals from the first and second applicators.

The first and second generators in the present claims are first and second generating means.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

I. Claims 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over **WO 91/12888** ('888).

WO '888 teaches a method of performing a plurality of chemical reactions simultaneously, said method comprising:

a) providing a first sample 5 (= samples contained in the reaction vessels) into a first applicator 1 (= a chamber),

b) applying electromagnetic radiation (= generating microwave radiation) to the first sample (= to heat directly the samples contained in the reaction vessels) in the first applicator 1 from a first generator 12 (= a magnetron tube), the first generator being capable of generating electromagnetic radiation at a plurality of frequencies (*inherent*) [MPEP § 2112.01(I) and § 2114], and

e) individually controlling the electromagnetic radiation applied to the first applicator 1 by individually and independently controlling the first generator 12 (= a control unit 11 further controls the magnetron tube) in response to control signals (= from a temperature sensor 13) from the first applicator 1 (page 3, line 2 to page 4, line 1; and Figure).

The applied electromagnetic radiation is within the range of 300 MHz-300 GHz (= the frequency of microwave radiation) [page 3, lines 37-38].

The first sample is a PCR mixture (= polymerase chain reaction) [page 3,

lines 2-13].

The electromagnetic radiation is applied to the samples in cycles of at least two steps (= at three desired temperatures with corresponding incubation periods with the number of cycles desired) [page 4, line 10 to page 5, line 1] where the samples are cooled at least during a part of each cycle (= a quick cooling) [page 4, lines 29-34].

The method of WO '888 differs from the instant invention because WO '888 does not disclose the following:

- a. Providing a second sample into a second applicator, as recited in claim 4.
- b. Applying electromagnetic radiation to the second sample in the second applicator from a second generator, the second generator being capable of generating electromagnetic radiation at a plurality of frequencies, as recited in claim 4.
- c. Individually controlling the electromagnetic radiation applied to the second applicator by individually and independently controlling the second generator in response to control signals from the second applicators, as recited in claim 4.
- d. Wherein the electromagnetic radiation applied to the first and second sample has essentially the same frequency and essentially the same power level so as to expose the first and second sample to essentially the same

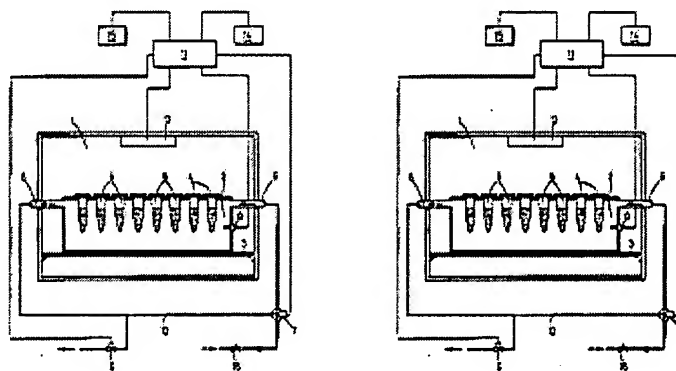
Art Unit: 1795

conditions, as recited in claim 6.

e. Wherein the second sample is a PCR mixture, as recited in claim 7.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by WO '888 with (a) to (e) above because the repetition of steps to provide the same results is well within the skill of one having ordinary skill in the art. The concept of duplication is not patentable. *St. Regis Paper Co. v. Bemis Co. Inc.*, 193 USPQ 8, 11 (7th Cir. 1977). While this decision relates to the duplication of parts, there is no reason why such duplication cannot be extended to a process step.

The repetition would look like this, performing a plurality of chemical reactions simultaneously :



II. Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over **WO 91/12888** ('888) as applied to claims 4-8 above, and further in view of **WO 95/27387** ('387).

WO '888 is as applied above and incorporated herein.

WO '888 also teaches wherein the reaction is conducted in an apparatus including at least one generator 1 (= a chamber) for generating waves of electromagnetic radiation (= generating microwave radiation), each of said at least one generators being capable of generating electromagnetic radiation at least one frequency (*inherent*) [MPEP § 2112.01(I) and § 2114], and a controller (= a control unit 11 further controls the magnetron tube) for individually controlling each of said at least one generators 12 (= a magnetron tube) in response to a control signal (= from a temperature sensor 13), the control signal reflecting the status of a sample in the at least one applicator (= a temperature of the sample from the temperature sensor 13) [page 3, line 2 to page 4, line 1; and Figure].

The method of WO '888 differs from the instant invention because WO '888 does not disclose wherein the apparatus includes at least one guide for guiding at least part of a generated wave of electromagnetic radiation to at least one applicator, as recited in claim 9.

Like WO '888, WO '387 teaches a microwave heating apparatus.

WO '387 teaches experiments with water (page 32, lines 24-29).

WO '387 teaches that a tapered waveguide 68 provides a means of reducing the power density of the microwave energy at the interface between the microwave input window and the reactive gases, thus preventing the formation of plasma discharges at the microwave input window (page 34, lines 21-29).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by WO '888

Art Unit: 1795

with wherein the apparatus includes at least one guide for guiding at least part of a generated wave of electromagnetic radiation to at least one applicator because a tapered waveguide would have provided a means of reducing the power density of the microwave energy at the interface between the microwave input window and the reactive gases, thus preventing the formation of plasma discharges at the microwave input window as taught by WO '387 (page 34, lines 21-29).

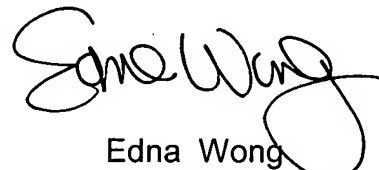
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private

Art Unit: 1795

PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Edna Wong
Primary Examiner
Art Unit 1795

EW
November 9, 2007